

C L A I M S

1<sup>st</sup>. - Precision dendrometer, of the type based on the use of extension measurement bands usable as resistances in a Wheatstone bridge type circuit, characterised in that the extension measurement bands are formed by a grid (1), consisting of a thin wire that traces a sinuous trajectory with long rectilinear, parallel and very close sections, mounted on a support (2) of an electrically insulating material, it being possible to establish a single grid (1), two grids (1) and (1'), on the same support (2), with directions of their wires perpendicular to each other, or three grids (1), (1') and (1'') of which two of them (1'') form opposite angles of 45 to 60° with the intermediate grid (1); with the particularity that said extension measurement bands are mounted on an aluminium sheet (10) placed on a cylinder, also of aluminium (13), forming as a whole a sensor that is supported by a sensor holder (15), through which the securing and mounting onto a plant (18) is carried out, the sensor assembly being connected to electronics or a circuit forming a connection interface (14) with the respective data collector.

2<sup>nd</sup>. - Precision dendrometer, according to the first claim characterised in that the grids (1), (1'), (1'') are formed of a base of copper-nickel, chromium-molibdenum-iron, nickel-chromium or platinum-tugsten whereas the support (2) is formed from a base of polyamides or epoxy type or phenolic type resins.

3<sup>rd</sup>. - Precision dendrometer, according to previous claims, characterised in that the extension measurement bands (1-2) are temperature auto-compensating bands.

4<sup>th</sup>. - Precision dendrometer, according to previous claims,

characterised in that the extension measurement bands assembly in the Wheatstone Bridge is quarter bridge, half bridge or full bridge, depending on if the extension measurement bands are placed as one, two or the four resistances of said bridge.

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5<sup>th</sup>.- Precision dendrometer, according to previous claims, characterised in that in the quarter bridge assembly only one of the branches of said bridge is active, because of which the ratio between its incoming voltage and output voltage is a quarter of the band factor multiplied by the deformation of the material, whereas when the assembly is half-bridge the voltages ratio is half the band factor by the deformation of the material, and in case of the full bridge the result of the band factor multiplied by the deformation of the material.

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6<sup>th</sup>.- Precision dendrometer, according to the 5<sup>th</sup>. claim, characterised in that in a full bridge assembly two of the bands have their grids (1) in accordance with the principal direction of maximum deformation, whereas the other two bands have their grids (1') in accordance with the principal direction of minimum deformation, at right angle to the previous.

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7<sup>th</sup>.- Precision dendrometer, according to the 5th. claim, characterised in that in a two-sided sensor two extension measurement bands are placed on each side, with their four grids (1) orientated in the same direction, specifically in that of the principal deformation, a number of active branches of four being obtained.

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8<sup>th</sup>.- Precision dendrometer, according to the 1<sup>st</sup>. claim, characterised in that the sheet (10) on which the extension measurement bands are mounted is of aluminium and has one of its ends secured to the cylindrical body (13) and the other with a double bend forming an

approximately triangular end (11), to contact with the plant (18) and to form the detector medium of the variation of said plant (18).

9<sup>th</sup>.- Precision dendrometer, according to the 1st. claim,  
5 characterised in that the sensor holder (15) includes a part with a cylindrical cavity where the cylindrical body (13) of the sensor assembly is housed and held, a number of rods (16) acting as feet being connected with said part of the sensor holder (15), to which a part (17), for adjusting and securing to the plant (8) in which it is applied, is linked.